Route guidance system using multi-agent reinforcement learning

Abstract

Nowadays, the problems of urban traffic in most big cities are more complex. Increasing population and road requirements has caused the complexity in traffic management systems. The main challenge for network traffic is to direct vehicles to their destination with the aim of reducing travel times and efficient use of available network capacity. This paper proposes a new agent model and algorithm based on multi-agent reinforcement learning to find a best and shortest path between the origin and destination nodes. Furthermore, the proposed algorithm is compared with Dijkstra algorithm to find optimal solution using some simple real sample of Kuala Lumpur (KL) road network map. Experimental results affirmed the same results to find the optimal solutions.